

### **REMARKS**

No new matter is added by this amendment. The present application is a continuation application of U.S. Patent Application Serial No. 09/654,458 filed September 1, 2000. In a prior amendment claims 1-15 were cancelled and new claims 16-38 were added. In a second prior amendment, claims 16 and 33 were amended, claim 20 was cancelled, and new claim 39 was added. By this amendment, claims 16-19, 21-23, 25-30 have been cancelled, and claims 24, 31, 32, and 34 have been amended. The claims remaining in consideration are claims 24, 31-36, and 39. Reconsideration is respectfully requested.

In the Advisory Action dated August 16, 2006, the Examiner confirmed applicant's assumption that he previously intended to indicate that claim 30 contained allowable subject matter and that dependent claim 30 would be allowed if presented in independent form.

This is noted with appreciated.

Independent claim 24 has been amended to include the limitations of dependent claim 30 and any intervening claims. The remaining claims 31, 32, 33, 34, 35, 36 and 39, are ultimately dependent upon allowable claim 24. Therefore, applicants respectfully assert that claims 31-36 and 39 are also allowable.

The Examiner objected to previously submitted proposed Figures 4 and 5 for containing new matter. This objection is respectfully traversed. While applicants respectfully assert that the specification, including the claims (as originally filed), fully support previously proposed Figures 4 and 5, applicants submit revised proposed Figures 4 and 5, simply in order to advance the present application to issue.

New Figure 4 shows a nozzle body 10 which includes a coating 14a of higher thermal conductivity as in Figure 3. The portion of the nozzle body 10 which is uncoated in Figure 3 is coated with a material 14b which has a lower thermal conductivity than the thermal conductivity of the nozzle body 10. This is fully taught in the paragraph beginning on page 9, line 8 which has been amended (above) to reference new Figure 4.

New Figure 5 shows a nozzle body 10 which has a first coating 14'a similar to the coating shown in Figure 1 or 3. The first coating 14a has a lower thermal conductivity than the thermal conductivity of nozzle body 10. A further coating 14d is applied to the first coating 14'a. The further coating 14d has a higher thermal conductivity than the thermal conductivity of the nozzle body. This is fully taught and supported by the paragraph beginning on Page 9, line 22 which has been amended to include references to new Figure 5.

The proposed drawings were objected to because they included reference numbers not mentioned in the description. The specification has been amended to include the missing reference numbers. Therefore, applicants respectfully request that the second drawing objection be withdrawn.

The drawings were objected to because they do not include the multi-layer structure recited in claim 24 or the additional substrate of material recited in claim 36. Applicants believe that they have overcome the Examiner's objections with respect to the revised proposed new Figures 4 and 5. New Figures 4 and 5 clearly show these element and structure and are fully supported by the disclosure (including the claims). Therefore, applicants respectfully request that the object to the drawings be withdrawn.

A previous draft of the proposed drawing corrections were faxed to Examiner Kim on September 1, 2006 and an Examiner Interview was held on September 13, 2006. Examiner Kim expressed concerns that the proposed drawing corrections of September 1, 2006 were not supported by the specification. The newly proposed drawings are aimed specifically at the Examiner's concerns and exactly mirror the language in the specification.

With regard to Figure 4, the Examiner expressed concern that the bonding layer 14<sup>e</sup> was not between the nozzle and layer 14<sup>b</sup>. In newly proposed Figure 4, the bonding layer 14<sup>e</sup>, is between the nozzle and both layers 14<sup>a</sup> and 14<sup>b</sup>. This is fully supported by the specification. Specifically, in the paragraph beginning on page 10, line 15, which reads in part (as amended above to include reference numbers): "an additional substrate material 14<sup>e</sup> may be applied to the nozzle body 10 to which a coating 14, 14<sup>a</sup>, 14<sup>b</sup> is to be applied to ensure satisfactory bonding of the coating(s) to the nozzle body".

With regard to Figure 5, the Examiner expressed concern that the further coating 14<sup>d</sup> was not along the entire outer surface of the first coating 14'<sup>a</sup>. In the newly proposed Figure 5, the further coating 14<sup>d</sup> is shown along the entire outer surface of the first coating 14'<sup>a</sup>. This is fully supported by the specification, specifically, in the paragraph beginning on page 9, line 22, which reads in part "a further coating 14<sup>d</sup> having a higher thermal conductivity than the thermal conductivity of the nozzle body 10 is applied to the first coating 14'<sup>a</sup>".

In a second advisory action dated September 28, 2006 made the following notes (numbering added):

(1) The amendment to the specification recites "14'a" which is not shown in the Figures. (2) Additionally, the amendment to the drawings and the specification is not responsive to the drawing objection of the final Office action mailed on July 6, 2006. Amended claim 24 recites that the

first coating of the multi-layer coating has a higher thermal conductivity than the nozzle body. The amendment specification and the drawings propose to show the first coating having a lower thermal conductivity than the nozzle body. (3) Finally, the amended claims contain withdrawn claims 27-29 which define embodiments contradictory to parent claim 24. Applicant's election was made with traverse in the reply filed on May 20, 2005.

With respect to note (1), a new formal drawing sheet with Figures 4 and 5 is attached herewith with the missing reference number (in Figure 5).

With respect to note (3), claims 27-29 have been cancelled.

With respect to note (2), applicant's attorney contacted Examiner Kim on October 31, 2006 to seek clarification. The Examiner confirmed that respect to the Examiner's objection to the drawings in final office action, *only the objection stated in the above cited note remain – all other objections having been withdrawn.* This is noted with appreciation.

The examiner states: "Amended claim 24 recites that the first coating of the multi-layer coating has a higher thermal conductivity than the nozzle body."

This is true. Applicants previously pointed out that specification, in describing Figure 5, also stated that the first and second coatings may be reversed.

In response, the Examiner in a third Advisory Action dated November 16, 2006, the Examiner stated:

While the specification indeed states that the layers may be reversed, it does not cure the defects to the drawing. 37 C.F.R. 1.83(a) requires that drawings must show every feature of the invention specified in the claims. Applicant's argument is akin to asserting that a drawing of a nozzle body showing no coatings should be sufficient because the specification indicates that the nozzle body can have a coating.

Other than the amendments with respect to new Figure 6 discussed below, all other amendments were previously presented to the Examiner in the previous response. Since this is the only objection raised by the Examiner in the November 16<sup>th</sup> Advisory Action, Applicants assume that the Examiner has withdrawn all previous rejections and objections.

In response to the Examiner's objection, new proposed Figure 6 has been added and the paragraph beginning on page 9, line 22, was further amended. With respect to this objection, the following amendments were made:

Alternatively, as shown in Figure 6, the order in which the coatings are layered may be reversed such that a first coating 14''<sup>a</sup> having a relatively high thermal conductivity is applied to the nozzle body 10 and an additional coating 14'<sup>d</sup> having a relatively low thermal conductivity is applied to the first coating 14''<sup>a</sup>. Typically, the additional coating 14'<sup>d</sup> may be formed from a material having properties similar to the coating 14, as described previously with reference to Figure 1. This alternative embodiment is particularly advantageous if the additional coating 14'<sup>d</sup> (i.e. the outermost layer) having a relatively low thermal conductivity is only applied to a lower region of the nozzle body 10, preferably only that region which projects from the cylinder head 20 and is exposed to temperatures within the combustion space.

Thus, only a reference to new Figure 6 and the addition of references numbers were added.

With respect to new Figure 6, it is the same as previously approved Figure 5, except that the references numbers 14'<sup>a</sup> and 14<sup>d</sup> were changed to 14''<sup>a</sup> and 14'<sup>d</sup>, respectively, to reflect the flipped layers (see above). Applicants respectively assert that support for the new Figure can be found in the specification, including the claims, as originally filed.

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All of the Examiner's objections and rejection having been successfully overcome or made moot, applicants respectfully assert that the present application is now in condition for allowance. An early notice of allowance is solicited.

Authorization for payment of the second month extension fee is being filed herewith. Applicant submitted \$120.00 on October 31, 2006 (RAM confirmation number 222) for one-month extension of time. Commissioner is hereby authorized to charge the remaining balance due of \$330.00 for a two-month extension of time under 37 C.F.R. §1.17(a)(2) to Deposit Account 08-2789 in the name of Howard & Howard Attorneys. Applicant believes that no additional fees are due, however, if any become required, the Commissioner is hereby authorized to charge any additional fees or credit any overpayments to Deposit Account 08-2789 in the name of Howard & Howard Attorneys.

**Respectfully submitted,**

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Dated: December 6, 2006